



Shippers pay more for packaging while paper and packaging companies face rising input and freight costs

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WHITE PAPER

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One year ago, we wrote a white paper in which we estimated that the top five paper and packaging companies in the U.S. spent a whopping \$7 billion to \$9 billion on domestic freight transportation in 2019. Despite the revenue declines posted by the industry in 2020, we believe that industry freight spend is just as high as pre-pandemic levels due to growth in packaging demand and higher freight rates.

Like many industries, 2020 was challenging for the paper and packaging industry. The largest company in the industry posted an 8% revenue decline in 2020 on lower demand for printing papers due to pandemic-related disruptions.

Meanwhile, demand for packaging improved during the pandemic and is expected to grow further going forward, which is causing the industry's largest player to focus on its corrugated packaging business while spinning off its paper business.

In contrast to the softer packaging prices experienced in 2020, companies have experienced considerable inflation rates in 2021, which has made packaging an area of greater focus for shippers. Packaging inflation is clearly part of a larger inflationary trend that has created headaches for shippers also facing higher costs for raw materials, labor, contract manufacturing and freight.

There are no signs of the pressure on costs abating. On its second-quarter analyst call, Unilever stated that its packaging costs rose 7% in just one quarter from 1Q21 to 2Q21, with an expectation that overall costs will continue to accelerate. For all that we talk about freight rates, that 7% sequential increase in packaging costs exceeded the 4% increase in freight rates over the same time period.

While the broad inflationary backdrop provides an appropriate time for paper and packaging companies to raise prices, we believe that raising prices is not the entire answer and it is clear that most large shippers are turning over every rock to find efficiencies throughout their supply chains.

With those thoughts in mind, we recommend that paper and packaging shippers leverage all data available when negotiating contracts and managing day-to-day freight movements. We estimate that the largest paper company could save ~\$23 million in freight spend pretax from a hypothetical reduction in freight spending of 1%.

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The top 5 paper and packaging companies in the US spent \$7B to \$9B on transportation in 2020

FreightWaves estimates that the top five paper and packaging companies in the U.S. had combined revenue of \$65 billion in 2020, which is a decline from \$68 billion in 2019. Following a massive wave of consolidation over the past decade, these companies have a combined market share of the U.S. paper and packaging market of about 75%. Assuming each spends 11% of its revenue on transportation, then as a group the top five paper and packaging companies spent approximately \$7 billion on transportation in 2020. When we published this report one year ago, we estimated that the industry spends about 10% of its revenue on transportation; the increase reflects the inflation in freight rates from 2019 to 2020.

Figure 1: Top five paper and packaging companies in the U.S. — 2020 revenue and transportation spend (at 11% of revenue).

| Top 5 Paper & Packaging Companies in the U.S. | | |
|---|----------------------------|---|
| | FY20 Revenue (\$ billions) | Transportation Spend at 11% (\$ millions) |
| #1 Paper and Packaging Company in U.S. | 20.6 | 2,264 |
| #2 Paper and Packaging Company in U.S. | 17.6 | 1,934 |
| #3 Paper and Packaging Company in U.S. | 13.3 | 1,468 |
| #4 Paper and Packaging Company in U.S. | 6.7 | 732 |
| #5 Paper and Packaging Company in U.S. | 6.6 | 722 |
| Total | 64.7 | 7,119 |

Source: company data and FreightWaves estimates

Figure 2: We believe the industry spent a higher percentage of its revenue on freight in 2020 versus 2019 with dry van contract truckload rates 5% higher in 2020 versus 2019.

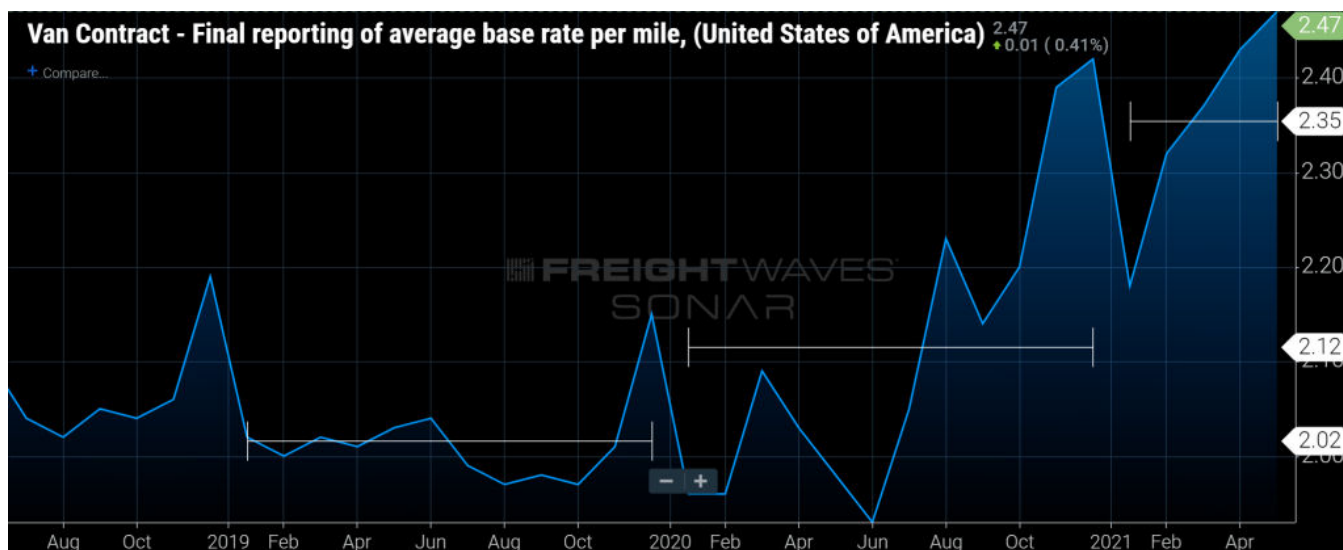
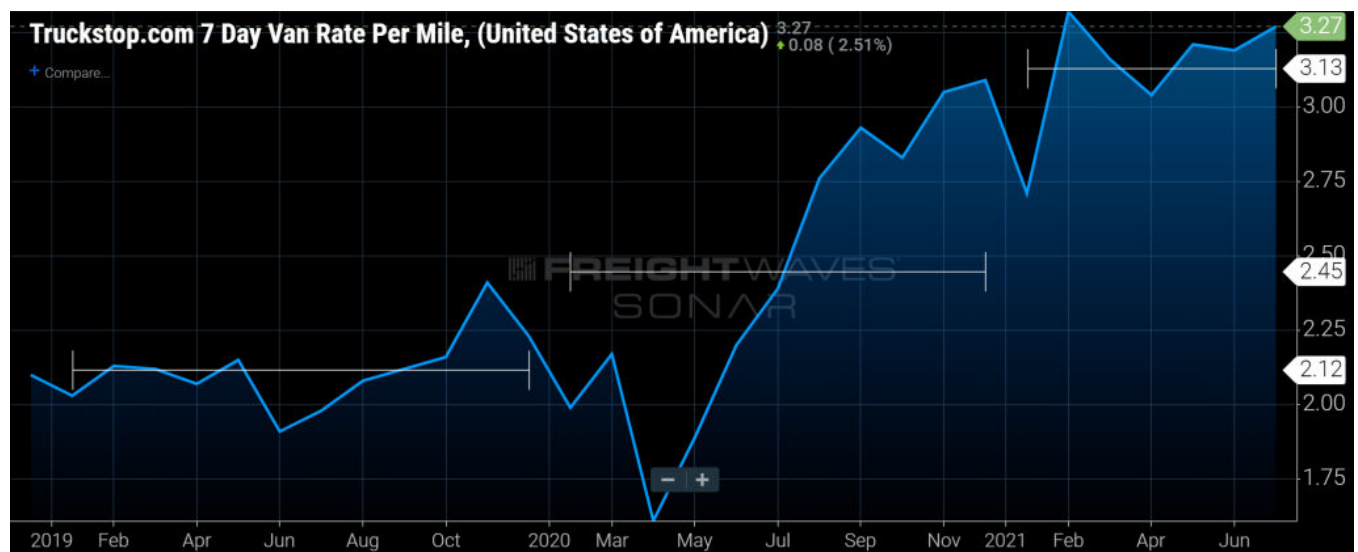


Figure 3: Meanwhile dry van spot rates rose ~15% from 2019 to 2020. In 2021, overall freight rates have risen dramatically as contracts have renewed at higher levels.



Paper and packaging companies do not typically disclose their transportation spend. Our estimate for each paper and packaging company's transportation spend as a percentage of revenue is based on the leading paper and packaging company spending \$2 billion on U.S. transportation in 2015 compared to total 2015 revenue of \$20.7 billion ([according to a 2015 Wall Street Journal article and interview with the CEO](#)). Note that this figure is said to be only for U.S. transportation, and given this leading packaging and paper company derives about 25% of its revenue internationally, the implied 2015 total global transportation spend was actually \$2.7 billion (or 13% of total revenue). Consistency across the five leading paper and packaging companies in terms of transportation spend intensity is assumed. If one instead assumes the top five paper and packaging companies spent 13% of their revenue on transportation in 2020, it amounts to a combined \$8.4 billion spent on transportation. If we adjust that 13% assumption upward to 14% to reflect the currently historically tight freight market conditions, the industry's total freight spend is roughly \$9 billion.

Figure 4: Top five paper and packaging companies in the U.S. — 2020 revenue and transportation spend (at 13% of revenue).

| Top 5 Paper & Packaging Companies in the U.S. | | |
|---|-----------------------------------|--|
| | <u>FY20 Revenue (\$ billions)</u> | <u>Transportation Spend at 13% (\$ millions)</u> |
| #1 Paper and Packaging Company in U.S. | 20.6 | 2,675 |
| #2 Paper and Packaging Company in U.S. | 17.6 | 2,285 |
| #3 Paper and Packaging Company in U.S. | 13.3 | 1,734 |
| #4 Paper and Packaging Company in U.S. | 6.7 | 866 |
| #5 Paper and Packaging Company in U.S. | 6.6 | 853 |
| Total | 64.7 | 8,413 |

Source: company data and FreightWaves estimates

For the leading paper and packaging company, \$2 billion spent on U.S. transportation in 2015 equated to about 9.7% of its total revenue. To arrive at the 2020 estimate for the leading paper and packaging company's transportation spending, this figure was adjusted for the revenue growth of the business over the last five years. Given the revenue of the leading paper and packaging company increased by about 10% since 2015 before the 8% pandemic-related revenue decline in 2020, and after accounting for 25% of the business being global, our estimate is that the leading paper and packaging company in the U.S. spent at least \$2.5 billion globally on transportation in 2020 (which works out to 12% of 2020 revenue or \$2.7 billion assuming 13%).

This means **if FreightWaves, through its data intelligence and SONAR, can drive a 1% savings on transportation spend (~\$23 million in annual savings) that it would also drive about a 1% increase in net income (at a 25% tax rate) for the leading paper and packaging company in 2021.**

Figure 5: Hypothetical transportation savings from SONAR for the No. 1 paper and packaging company in the U.S.

| | | |
|------|--|------------------|
| BASE | 2021 Estimated Trans. Spend | \$ 2,254,700,000 |
| | Trans Eff. Saving (theoretical) with SONAR | 1.0% |
| | Potential Trans. Savings | \$ 22,547,000 |
| | 2021 Adjusted Net Income Estimate (BofA Secs.) | \$ 1,775,000,000 |
| | Potential Boost to Net Income from SONAR | 1.0% |
| BEAR | 2021 Estimated Trans. Spend | \$ 2,254,700,000 |
| | Trans Eff. Saving (theoretical) with SONAR | 0.5% |
| | Potential Trans. Savings | \$ 11,273,500 |
| | 2021 Adjusted Net Income Estimate (BofA Secs.) | \$ 1,775,000,000 |
| | Potential Boost to Net Income from SONAR | 0.5% |
| BULL | 2021 Estimated Trans. Spend | \$ 2,254,700,000 |
| | Trans Eff. Saving (theoretical) with SONAR | 1.5% |
| | Potential Trans. Savings | \$ 33,820,500 |
| | 2021 Adjusted Net Income Estimate (BofA Secs.) | \$ 1,775,000,000 |
| | Potential Boost to Net Income from SONAR | 1.4% |

Note: The above tables use a 25% tax rate.

Though this example is entirely hypothetical, it shows the importance of running supply chains as efficiently as possible. We recommend leveraging any data available in optimizing supply chains, including data contained in SONAR, which we believe would generate a very attractive return on investment for a large shipper in the paper and packaging industry. Even if the savings from implementing SONAR companywide are merely a fraction of the above, it makes sound business sense for paper and packaging companies to consider FreightWaves as a resource for their transportation needs.

Further, a smoother and faster-running supply chain is effectively the equivalent to a boost in capacity for paper and packaging companies, allowing them to boost asset turns and returns on assets with very limited incremental investment.

Regarding the trend of paper and packaging companies spending ever-growing sums on transportation, at a recent investment conference the leading paper and packaging company CEO stated: “I started with the company many, many years ago as an engineer and it [transportation] was a small, almost rounding error of a cost category and now it’s as big as chemicals, energy and people. It’s a **strategic area and our industry wasn’t always the best at that and we’re working really hard to be sophisticated consumers of transportation.**”

The same CEO told The Wall Street Journal in 2015 that **planning, forecasting and efficiency were the keys to getting the most out of its \$2 billion in annual transportation spend. SONAR was built to help companies meet this goal.** Investing in software and technology to drive greater efficiencies in transportation spend would seem to make a great deal of sense. According to the WSJ article, **“That level of spending makes the paper giant the largest railroad boxcar customer, the third-largest waterborne U.S. exporter by volume and a leading user of trucks.”**

Whether those billions are spent on rail boxcars, intermodal, ocean container ships, truckload or less-than-truckload, FreightWaves has the relevant market experts and data intelligence in SONAR to keep the paper/packaging companies informed and on top of everything going on in the freight market.

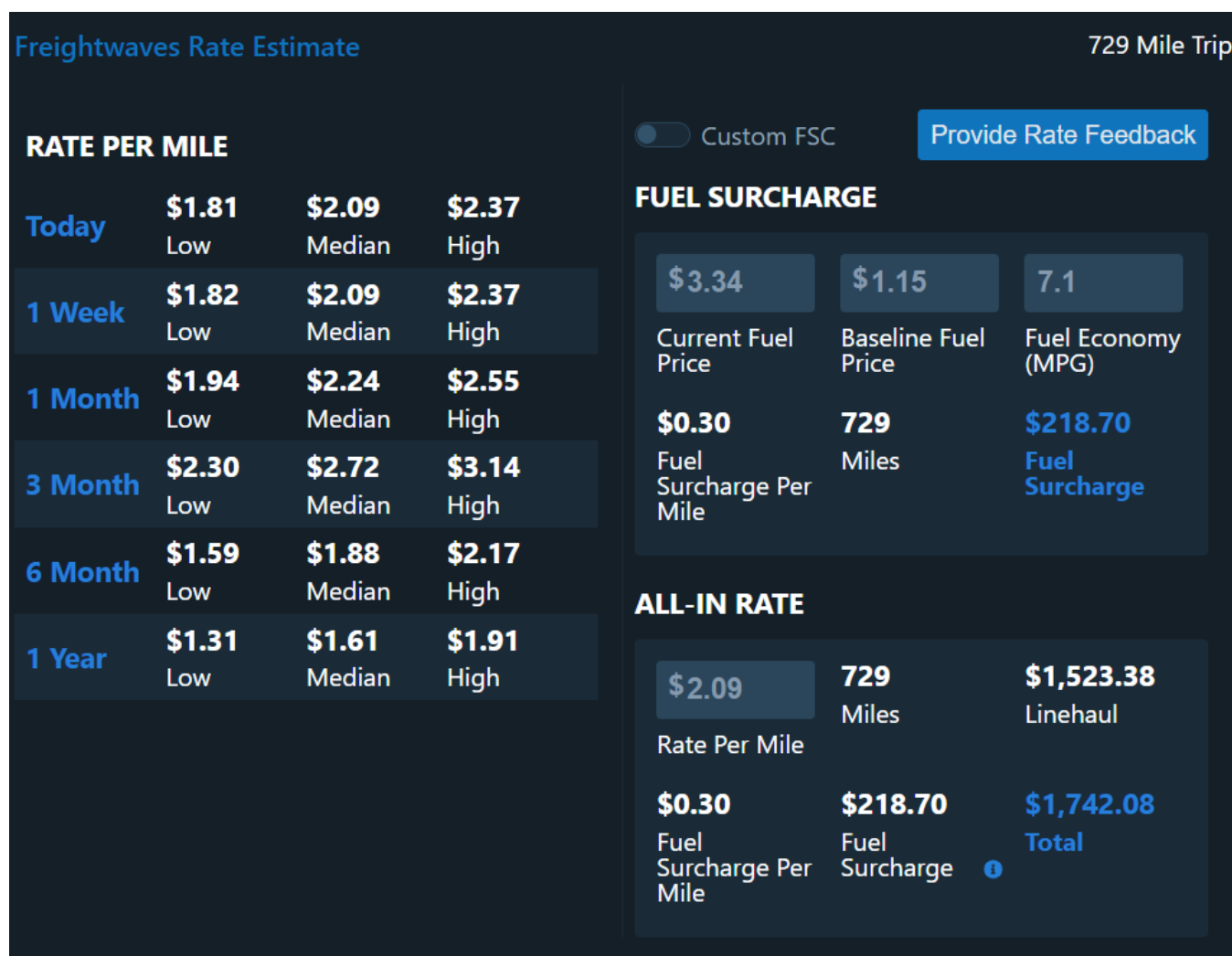
One of the leading drivers of current and future growth for paper and packaging companies is e-commerce merchandise that is shipped in corrugated paper and cardboard boxes. E-commerce is making supply chains more complex and expensive and FreightWaves can help paper and packaging companies keep their transportation spending in check using SONAR data and market intelligence.

Paper and packaging companies may also have limited revenue visibility beyond a few weeks or months, meaning that they have to tap the spot market or book transportation on short notice to keep up with short order cycle demand. **SONAR can help paper and packaging companies optimize their transportation spend and help them make the correct choices when it comes to using different modes of transportation.**

How paper and packaging companies can use SONAR

When it comes to trucking, SONAR offers unparalleled access to critical freight data and intelligence as they pertain to monitoring and forecasting load volumes, capacity, freight rates (both spot and contract), rates by individual lane, outbound tender market share, etc. FreightWaves even possesses a rate forecasting tool that utilizes market data and AI to predict spot rates up to one year in advance. SONAR predictive rates take into account historical data, market trends and seasonal effects to generate a high, median and low rate-per-mile forecast for a selected route and mode. When used in conjunction with SONAR’s immense data platform, predictive rates can allow paper and packaging companies to make educated decisions within their surface transportation networks. Spending hundreds of millions (or billions) annually on transportation without using SONAR means that a company is missing a critical tool in the toolbox.

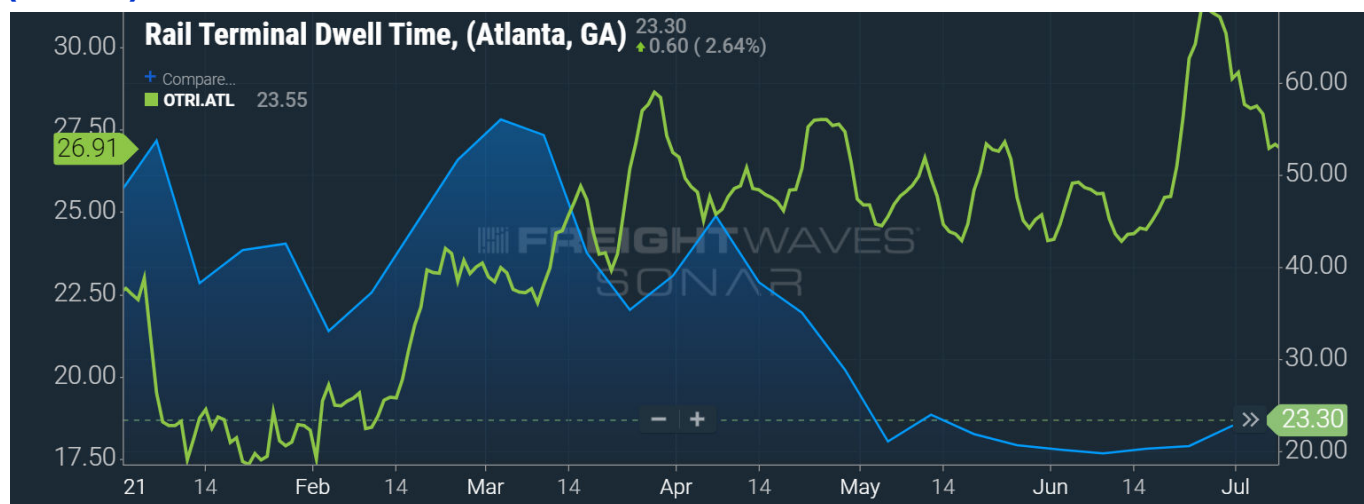
Figure 6: SONAR predictive rates – Atlanta to Chicago



For paper and packaging companies that use multiple modes of transportation to move their inputs and outputs, that modal flexibility based on rail network fluidity compared to trucking capacity is one key to optimizing transportation spend. SONAR actionable data and intelligence can be beneficial in this regard.

Paper and packaging companies are heavy users of rail boxcars, an equipment population with a declining population, truckload and intermodal. With the number of rail boxcars rapidly falling out of service (down by about one-third in the last decade with little incentive by the OEMs to rebuild the population), paper and packaging companies will need to evaluate differing multimodal solutions to fulfill their transportation needs. That is where FreightWaves' insights on truckload and intermodal come into play as paper and packaging shippers utilize transportation equipment other than boxcars.

Figure 7: SONAR Rail Dwell Times (Atlanta) and Outbound Tender Rejections (Atlanta)



(Chart: FreightWaves SONAR: Rail Dwell Times for Atlanta (right axis - blue), Outbound Tender Rejection Index for Atlanta (left axis - green))

If a paper company's mills are located in the Southeast U.S., using these two periods as an example, the company could benefit by switching from one mode to another opportunistically. SONAR allows near-time pricing on a spot basis (for truck and intermodal) that is appropriate to the type of mini-bids associated with, say, a monthlong shift from rail to trucking (or vice versa).

FreightWaves' data can also compare train velocities and dwell times by railroad, so a paper company could compare Norfolk Southern to CSX on a constant basis.

For another example of how SONAR could be helpful to a paper and packaging company, consider that Chicago is a major rail hub in the Midwest. If a paper company has significant volumes flowing through Chicago, it can use SONAR to monitor dwell times, trucking capacity and spot rates to tactically price point-to-point trucking moves out of Chicago to save time and keep its products moving. This can be especially beneficial as Union Pacific and BNSF have suspended and metered service to Chicago from the West Coast in an effort to

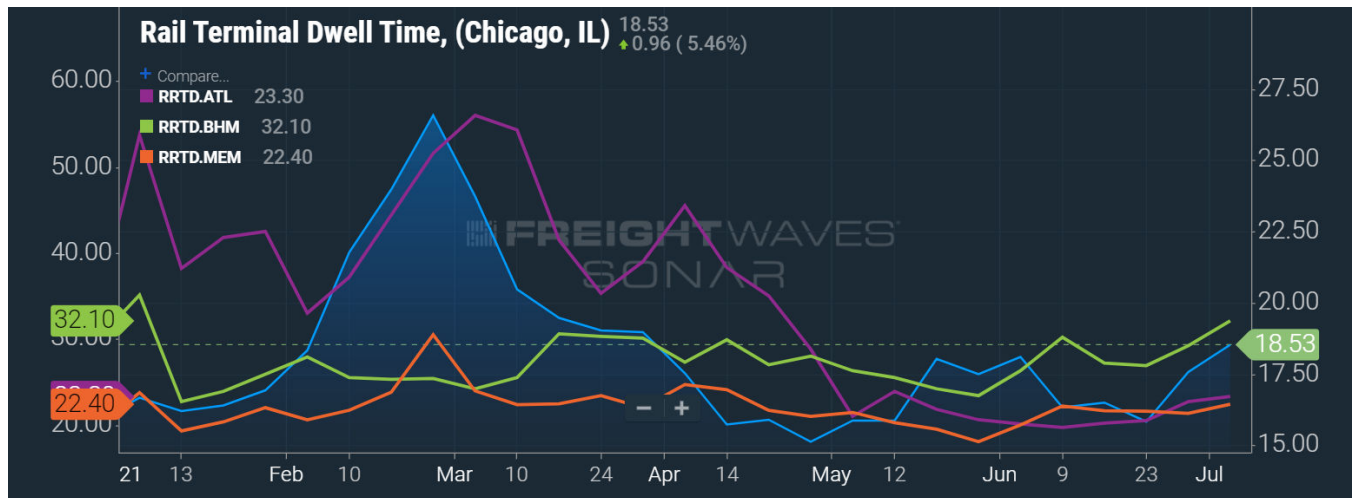
ease congestion. This example can be extended to any rail and trucking market within the U.S.

Figure 8: SONAR Rail Dwell Times (Chicago), Outbound Tender Rejections (Chicago) and Truckstop.com Van Spot Rates (Chicago to Atlanta)



(Chart: FreightWaves SONAR: Rail Dwell Times (Chicago; RRTD.CHI), Outbound Tender Rejections (Chicago; OTRI.CHI), Truckstop.com Spot Rates (Chicago to Atlanta; TSTOPVRPM.CHIATL))

Figure 9: SONAR Rail Dwell Times at major U.S. terminals — Chicago, Atlanta, Birmingham and Memphis



(Chart: FreightWaves SONAR: Rail Dwell Times (Chicago; RRTD.CHI), Rail Dwell Times (Atlanta; RRTD.ATL), Rail Dwell Times (Birmingham; RRTD.BHM), Rail Dwell Times (Memphis; RRTD.MEM))

Finally, FreightWaves' data science team has the ability to create custom indices and metrics that can be used to optimize any company's unique transportation needs. For example, FreightWaves could potentially create a holistic rail service score by combining dwell times

and train velocities to make it simpler to chart rail service and network fluidity against trucking markets and capacity availability.

The bottom line is that SONAR can potentially save paper and packaging companies a great deal of money on their transportation spend while at the same time improving the efficiency of their transportation operations and boosting the knowledge and skill set of their employees. SONAR can also help paper and packaging companies achieve a leg up on the competition, making it a compelling proposition to consider partnering with FreightWaves.

Like what you've read? Sign up for Passport Research [here](#) or request a SONAR demo [here](#).